

Remarks

The Final Office Action dated August 24, 2009 indicated that: claims 6 and 8 are allowed; claims 1-5 and 7 stand rejected under 35 U.S.C. § 112(1); claims 9 and 11 stand rejected under 35 U.S.C. § 103(a) over Ichihara (U.S. Patent No. 7,206,360) in view of Olson (U.S. Patent No. 7,0502,778); and the drawings stand objected to.

The previous non-final Office Action dated March 17, 2009 indicated claim 1 was rejected under 35 U.S.C. § 103(a) over the '360 reference in view of Birleson (U.S. Patent No. 6,177,964); claims 2-5 were rejected under 35 U.S.C. § 103(a) over the '360 and '964 references and further in view of the '778 reference; claim 7 was rejected under 35 U.S.C. § 103(a) over the '360, 964, and '778 references in view of Leenaert (U.S. Patent No. 6,999,745). These rejections have not been withdrawn and have not been addressed in the Final Office Action. Applicant traverses all of the rejections and, unless explicitly stated by the Applicant, does not acquiesce to any objection, rejection or averment made in the Office Action.

In the Final Office Action, after rejecting claims 1-5, and 7 on grounds of §112 paragraph 1, the Examiner failed to examine the claims "on the merits for compliance with other statutory requirements , including those of 35 U.S.C. 101, 102, 103, and 112," as required by M.P.E.P. §2163 and §707.07(f). Particularly, the Final Office Action did not address the previously presented §103(a) rejections of the claims.

Applicant first traverses the § 103(a) rejection of claim 7 because the '745 reference does not qualify as prior art under § 103(a). As discussed in the previous Amendment and Response to Office Action, dated June 11, 2009, Applicant hereby invokes § 103(c) and alleges that the subject matter of the claimed invention and of the cited '745 reference "were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person." According to M.P.E.P. § 706.02, the rejection under 35 U.S.C. § 103(a) should be withdrawn because "(s)ubject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person." This portion of the M.P.E.P. goes on to state that

such subject matter which was prior art under former 35 U.S.C. § 103 via 35 U.S.C. § 102(e) is now disqualified as prior art against the claimed invention.

The '745 reference appears to have been first published on May 8, 2003, and the instant application is entitled to priority dates of at least November 20, 2003 (via PCT/IB03/05412) and December 19, 2002 (via EP 02080396.1). Thus, Applicant assumes that the '745 reference has been asserted as prior art under § 102(e). The '745 reference and the instant application to Van Sinderen *et al.* were at all relevant times assigned to, or subject to an obligation of assignment to, Koninklijke Philips Electronics N.V., as is evidenced by the assignment for the '745 reference recorded at Reel/Frame 013659/0531, and the assignment for the instant application recorded at Reel/Frame 018085/0843. Therefore, Applicant submits that the '745 reference does not qualify as prior art by way of § 102(e) and § 103(c). Accordingly, the § 103(a) rejection of claim 7 is improper and Applicant requests that it be withdrawn.

Regarding the remaining § 103(a) rejections of claims 1-5, 7, 9, and 11, Applicant respectfully traverses the § 103(a) rejections because the cited combination of references lacks correspondence. For example, none of the asserted references teaches the claimed invention "as a whole" (§ 103(a)) including, *e.g.*, aspects of the claimed invention directed to making amplitude corrections during frequency translation. Because none of the references teaches these aspects, no reasonable combination of these references can provide correspondence. As such, the § 103 rejections fail.

Specifically, the Office Action has not cited any supporting discussion in the '360 reference which teaches that the cited amplitude detector carries out amplitude correction during any frequency translation. The Examiner suggests to modify Figure 1 of the '360 reference to place amplification circuit 7a of Figure 1 directly after demodulation circuit 4 of Figure 1, as to enable demodulation and amplification circuits to be combined. However, the reference provides no disclosure or suggestion that amplitude adjustment is functional prior to such bandpass filtering, as suggested by the Examiner.

Rather, the '360 reference teaches away from making amplitude corrections during frequency translation, and thus teaches away from the proposed combination. Consistent with the recent Supreme Court decision, M.P.E.P. § 2143.01 explains the long-standing principle that a § 103 rejection cannot be maintained when the asserted

modification undermines either the operation or the purpose of the main ('360) reference - the rationale being that the prior art teaches away from such a modification. *See KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1742 (2007) (“[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be non-obvious.”).

In this instance, the purpose of the '360 reference teaches away from correction during demodulation. Instead, the '360 reference teaches that the amplitude deviation correction be carried out “after orthogonal demodulation” (*see* column 1 in the “Field of Invention”). Referring to the discussion of Figure 1 at Column 4:61 - 5:26, the cited rectifiers (51, 52) and correction (19) occur after demodulation (at demodulator 4) and are carried out on the respective I and Q signals (*i.e.*, after the signals have been band pass filtered). Thus, there is no motivation to modify the '360 reference to carry out correction during frequency translation because such a modification would undermine this purpose.

The § 103 rejections of claims 2-5, 7, 9, and 11 are further improper because the '360 reference teaches away from the combination with the '778 reference. The '360 reference does not disclose a polyphase filter as claimed in the present invention. The Office Action proposes to modify Fig. 1 of the '360 reference to include the polyphase filter disclosed in the '778 reference. However, the '778 reference only teaches the use of a polyphase filter as an IF filter (*see* claim 6). The '360 reference teaches that one benefit of performing direct conversion into a baseband signal, as claimed in the '360 reference, is that the IF filter can be removed from the circuit and the need for a second local oscillator is avoided (*see* Column 2:55-2:65). Because, the proposed addition of the polyphase IF filter of the '778 reference undermines the operation or the benefit provided by the main ('360) reference, there is no motivation to make the proposed modification.

Applicant further traverses the § 103(a) rejection of claims 4 and 5 because the cited references do not correspond to the claimed invention. Specifically, Applicant submits that the Examiner has not presented any reference that discloses a further amplitude detector circuit for making common mode corrections of an amplifier circuit of a mixer. Nor has the examiner provided any motivation to make common mode corrections in a mixer circuit other than to state that “it would have been obvious to one

skilled in the art to utilize a common mode as an alternative of design choice. The only motivation to make common mode corrections in the mixer circuit comes from Applicant's disclosed insight that amplitude adjustment is necessarily due when small transistors, such as in an integrated circuit, are used. Applicant's disclosure states:

The invention is based upon an insight, inter alia, in mixer-systems designed with integration technologies based upon small transistors (with small transistors having a size such that phase errors are no longer dominating the performance), these small transistors have, compared to larger transistors (with larger transistors having a size such that phase errors are dominating the performance), smaller parasitic capacitors (which reduce the frequency dependencies) and larger absolute spreads at on-resistance (which reduce the image suppression at low frequencies) resulting in amplitude errors, and is based upon a basic idea, inter alia, that these amplitude errors should be corrected (compensated).

Applicant's disclosure further recognizes that "common-mode errors may result from designs with integration technologies based upon small transistors, or not." and, further that, "due to polyphase filters not rejecting common-modes, further amplitude detectors improve the mixer system dramatically." Because the only motivation to include further amplitude detection circuits to correct common mode errors is based on Applicant's disclosure, Applicant submits that the Examiner has simply identified amplitude correction circuits as common circuit elements (which can be found in any number of references) and then arranged these elements using the claimed invention as a template. This is the hallmark of improper hindsight reconstruction with the proposed combination being derived, not "on the basis of the facts gleaned from the prior art," but solely from Applicant's disclosure. *See, e.g.*, M.P.E.P. §2142.

Further, Applicant submits that the Examiner failed to consider Applicant's recognition of the source of amplitude errors and the ability to perform further amplitude correction using common mode correction as evidence of non-obviousness. *See Eibel Process Company v. Minnesota & Ontario Paper Company*, 261 U.S. 45,67 (1923)(A patentee's inventive contribution includes not merely his or her solution to a particular problem, but also the patentee's initial identification of what may have been an undefined or elusive problem.)

Because motivation to correct common mode errors in a mixer circuit is only presented in Applicant's disclosure, the § 103(a) rejections of claims 4 and 5 must be withdrawn.

Applicant respectfully traverses the § 112(1) rejection of claims 1-5 and 7 because aspects of these claims are fully supported by Applicant's specification in compliance with the written description requirement, as has been discussed in detail in the previous three Responses. In this instance, the Examiner has not met the initial burden of a thorough reading and evaluation of the application and has presented neither sufficient evidence nor sufficient analysis/reasons why a person skilled in the art would not recognize that the written description of the invention provides support for the claims. *See, e.g.*, M.P.E.P. § 2163. Applicant submits that the original disclosure is sufficient to enable one skilled in the art to recognize and understand the invention as currently claimed (*see, e.g.*, paragraphs 0039-0041). *See, e.g., Union Oil Co. of California v. Atlantic Richfield Co.*, 208 F.3d 989 (Fed. Cir. 2000), *cert. denied*, 69 U.S.L.W. 3165 (Feb. 20, 2001) (No. 00-249) (quoting *In re Gosteli*, 872 F.2d 1008, 1012, 10 U.S.P.Q.2d 1614, 1618 (Fed. Cir. 1989) ("The written description requirement does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.'")).

The Final Office Action maintains that the original disclosure does not describe "at least one output signal of mixer circuit includes video image data without audio data and wherein audio data is processed in a signal path that is separate from said signal having video-image data." Applicant submits that paragraph 0031 discusses frequency translation of a signal comprising "video+audio" data and paragraph 0041 discusses how video and audio signals are separated by the mixer system and processed.

The mixer system that provides the audio signal from the video signal is illustrated in the Figures in a manner that is clear and further consistent with a basic level of understanding of one of skill in the art for one of several example contexts provided. For the "mobile phone camera picture" disclosed as one example application in paragraph 39, one skilled in the art at the time of filing would recognize that in relevant cellular systems network audio data is transmitted on one frequency channel and video data is

transmitted on a second frequency channel. *See, e.g.*, U. S. Patent No. 5,784,572 (Rostoker *et al.*) and U. S. Patent No. 7,206,360 (Ichihara). Similarly, in television signal context, audio and video are transmitted on different frequencies. *See* U.S. Patent No. 5,541,672 (Goeckler *et al.*) and U.S. Patent No. 7,050,778 (Olson).

With reference to the cellular example, Paragraph 39 describes that the mixer block “frequency translates (downconverts and/or demodulates)” signals comprising audio/video information in the context of a mobile phone camera picture application.” In downconversion, it is well understood in the art that a mixer multiplies the received RF signal with specific oscillator frequency to frequency translate or down-convert a signal from a specific frequency band which is then filtered to isolate certain harmonics. Paragraph 39 discloses this operation in relation to the audio and video signals which are understood, from the context of the mobile phone example, to include audio and video signals transmitted at different frequencies. Paragraph 39 specifically states:

[Signals] are for example supplied to said mixer block 3 either via one or more polyphase filters (in case of mixer-block 3 comprising for example four mixers (multipliers) etc.) for converting the signals comprising audio/video information into complex signals (like for example I and Q signals) and for filtering certain harmonics discloses that the output of each mixer. . . . Said mixer block 3 frequency translates (downconverts and/or demodulates) signals comprising audio/video information received via for example a mobile phone connection. . . . The output signals of mixer-circuit 2 are for example supplied to one or more further polyphase filters for filtering and deconverting said output signals.

Paragraph 41 further discloses the operation of isolating an audio signal from a video signal by mixing and states:

Each mixer or multiplier frequency translates an input signal through mixing or multiplying said input signal with a local oscillator signal. This results in a wanted signal and an unwanted image. To suppress said unwanted image signal, two mixers or multipliers are used each receiving said input signal which two mixers or multipliers are followed by one or more polyphase filters.

A similar processing would be appreciated for the television-signal context in connection with the mixer block 3 and according to the present invention. Many U. S. patents would further support this well-known background.

Accordingly, paragraphs 39 and 41 disclose that an audio signal is isolated/separated from a video signal by two mixers followed by one or more polyphase filters. Applicant further submits that one skilled in the art would recognize that two of

the four mixer circuits disclosed in mixer block 3 of Figures 3 and 4 are used to isolate the audio signal by suppressing the video signal as discussed in paragraph 41. Conversely, one skilled in the art would further recognize that the video signal may be isolated by suppressing the audio signal in the same manner, using the remaining two mixers in mixer block 3 of Figures 3 and 4. Moreover, this is consistent with the Examiner's own indication that "it is noted that when processing a video signal which comprises image data and audio data, one skilled in the art would recognize that these two components would be separated by a mixer..." (see page 5 of previous Final Office Action dated October 6, 2008). Figures 1 and 4 further show output of the four mixers in block 3 connected independently to amplifier circuits and demonstrate that signals produced by each mixing block would be processed for amplitude correction on different signal paths.

Applicant respectfully submits that the written description requirement has been more than satisfied by way of explicit language and illustrations in Applicant's originally-filed specification, and as consistent with the Examiner's indications of what one of skill in the art would understand.

Regarding the objection to the drawings, Applicant respectfully traverses the objection to the drawings in view of the current amendment to paragraph 0041, which Applicant believes is clear regarding how the drawings support aspects directed to separating the audio and video signals.

In view of the remarks above, Applicant believes that each of the rejections/objections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063.

Please direct all correspondence to:

Corporate Patent Counsel
NXP Intellectual Property & Standards
1109 McKay Drive; Mail Stop SJ41
San Jose, CA 95131
CUSTOMER NO. 65913

By: 

Name: Robert J. Crawford
Reg. No.: 32,122
(NXPS.504PA)